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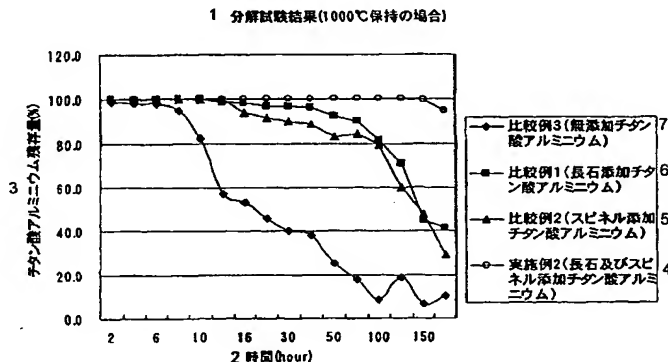
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- (51) 国際特許分類⁷: C04B 35/478 (72) 発明者; および
(21) 国際出願番号: PCT/JP03/04813 (75) 発明者/出願人 (米国についてのみ): 横尾 俊信 (YOKO, Toshinobu) [JP/JP]; 〒611-0013 京都府 宇治市 英道門ノ前3 1-1 パデション三室戸1 2 0号 Kyoto (JP). 高橋 雅英 (TAKAHASHI, Masahide) [JP/JP]; 〒611-0011 京都府 宇治市 五ヶ庄官有地 京大職員宿舎 1 棟 1 1 3 号 Kyoto (JP).
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(71) 出願人 および
(72) 発明者: 福田 勉 (FUKUDA, Tsutomu) [JP/JP]; 〒675-1213 兵庫県 加古川市 上荘町国包7 8 5-1 Hyogo (JP). 福田 匡洋 (FUKUDA, Masahiro) [JP/JP]; 〒611-0041 京都府 宇治市 横島町目川5 2 番地 朝日プラザ向島南1 0 5号 Kyoto (JP). 福田 匡晃 (FUKUDA, Masaaki) [JP/JP]; 〒675-1213 兵庫県 加古川市 上荘町国包7 8 5-1 Hyogo (JP).
(74) 代理人: 三枝 英二, 外 (SAEGUSA, Eiji et al.); 〒541-0045 大阪府 大阪市 中央区道修町1-7-1 北浜 T N Kビル Osaka (JP).
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(54) Title: METHOD FOR PRODUCING ALUMINUM TITANATE SINTERED COMPACT

(54) 発明の名称: チタン酸アルミニウム焼結体の製造方法



- 1...RESULTS OF DECOMPOSITION TEST (HOLDING AT 1000°C)
2...TIME (HOUR)
3...RESIDUAL AMOUNT OF ALUMINUM TITANATE (%)
4...EXAMPLE 2 (ALUMINUM TITANATE ADDED WITH FELDSPAR AND SPINEL)
5...COMPARATIVE EXAMPLE 2 (ALUMINUM TITANATE ADDED WITH SPINEL)
6...COMPARATIVE EXAMPLE 1 (ALUMINUM TITANATE ADDED WITH FELDSPAR)
7...COMPARATIVE EXAMPLE 3 (ALUMINUM TITANATE ALONE)

(57) Abstract: A raw material composition for an aluminum titanate sintered compact, characterized in that it comprises (1) 100 parts by weight of a mixture comprising 40 to 50 mole % of TiO_2 and 60 to 50 mole % of Al_2O_3 , and (2) 1 to 10 parts by weight of alkali feldspar represented by the chemical formula: $(\text{Na}_x\text{K}_{1-x})\text{AlSi}_3\text{O}_8$ ($0 \leq x \leq 1$) and 1 to 10 parts by weight of at least one Mg-containing component selected from the group consisting of an oxide containing Mg and having a spinel type structure, MgCO_3 and MgO ; and a method for producing aluminum titanate sintered compact, characterized in that it comprises firing moldings formed from the raw material composition at 1300 to 1700°C. The method allows the production of an aluminum titanate sintered compact which exhibits enhanced mechanical strength and can be used stably also at a high temperature, while retaining a small thermal expansion coefficient and good corrosion resistance being inherent in an aluminum titanate sintered compact itself.

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ABSTRACT

The present invention provides a raw material composition for preparing a sintered body of aluminum titanate, the composition comprising (i) 100 parts by weight of a mixture comprising 40 to 50 mol% of TiO_2 and 60 to 50 mol% of Al_2O_3 , (ii) 1 to 10 parts by weight of an alkali feldspar represented by the formula: $(\text{Na}_x\text{K}_{1-x})\text{AlSi}_3\text{O}_8$ ($0 \leq x \leq 1$), and (iii) 1 to 10 parts by weight of at least one Mg-containing component selected from the group consisting of a Mg-containing oxide with spinel structure, MgCO_3 and MgO , and a process for preparing a sintered body of aluminum titanate comprising sintering a formed product prepared from the raw material composition at 1300 to 1700°C. According to the present invention, a sintered body of aluminum titanate having high mechanical strength and ability to be stably used at high temperatures, as well as its inherent properties of low coefficient of thermal expansion and high corrosion resistance, can be obtained.